Contents Volume 40, 1990

New directions for JVGR – A.R. McBirney v
Publisher's Note vi

Research Papers
An ash-flow tuff emplaced in shallow water, Early Miocene Koura Formation, southwest Japan
K. Kano (Tsukuba, Japan) 1
Primary fractures within a tuff cone, North Menan Butte, Idaho, U.S.A.
W.J. Russell (Saskatoon, Sask., Canada) and W.C. Brisbin (Winnipeg, Man., Canada) ... 11
Oxygen and carbon isotope ratios of hydrothermal minerals from Yellowstone drill cores
N.C. Sturchio (Argonne, IL, U.S.A.), T.E.C. Keith (Menlo Park, CA, U.S.A.) and K. Muehlenbachs (Edmonton, Alta., Canada) 23
Direct dating of Plio-Quaternary pumices by $^{40}Ar/^{39}Ar$ step-heating and single-grain laser fusion methods: the example of the Monts Dore massif (Massif Central, France)
G. Féraud and P. Lo Bello (Nice, France), C.M. Hall (Toronto, Ont., Canada), J.-M. Cantagrel (Clermont-Ferrand, France), D. York (Toronto, Ont., Canada) and M. Bernat (Nice, France) 39
The origin of alkaline magmas in an intraplate setting near a subduction zone: the Ngatutura Basalts, North Island, New Zealand
R.M. Briggs and A.J. Utting (Hamilton, New Zealand) and I.L. Gibson (Waterloo, Ont., Canada) 55
Monitoring of volcanic eruptions at Yugama crater lake by aqueous sulfur oxyanions
B. Takano and K. Watanuki (Tokyo, Japan) 71
Temporal and spatial characteristics of volcanic tremor wave fields
E.L. Gordeev, V.A. Saltykov, V.I. Sinitsyn and V.N. Chebrov (Petrapavlovsk-Kamchatsky, U.S.S.R.) 89

Publisher's Note 103

Research papers
Hydrothermal alteration in the Valles caldera ring fracture zone and core hole VC-1: evidence for multiple hydrothermal systems
G. WoldeGabriel (Los Alamos, NM, U.S.A.) 105
Shallow temperature differences along the Deep Creek Range front, Idaho
H.T. Ore and G.H. Wiegand (Pocatello, ID, U.S.A.) 123
Chlorine and fluorine in tholeiitic and alkaline lavas of Etna (Sicily)
N. Metrich (Gif-sur-Yvette, France) 133
Geochemical evolution of Pliocene-Recent post-subduction alkalic basalts from Seal Nunataks, Antarctic Peninsula
M.J. Hole (Cambridge, U.K.) 149
Time scale of hydrothermal water–rock reactions in Yellowstone National Park based on radium isotopes and radon
J.F. Clark and K.K. Turekian (New Haven, CT, U.S.A.) 169

Strontium isotopic characteristics of arc volcanic rocks at the initial stage of subduction in western Japan
K. Notsu (Tokyo, Japan), Y. Arakawa (Tsukuba, Japan) and T. Kobayashi (Kagoshima, Japan) 181
Eruptive mechanism on Piton de la Fournaise volcano associated with the December 4, 1983, and January 18, 1984 eruptions from ground deformation monitoring and photogrammetric surveys
J. Zlotnicki and J.C. Ruegg (Paris, France), P. Bachelery (Saint-Clotilde, France) and P.A. Blum (Paris, France) 197
The fossil hydrothermal system of Saint Martin, Lesser Antilles: geology and lateral distribution of alterations
D. Beaufort (Poitiers, France), D. Westercamp and O. Legendre (Orleans, France), and A. Meunier (Poitiers, France) 219
Evidence for magma hybridization for the voluminous 29.5 Ma Wah Wah Springs Formation, Utah and Nevada, U.S.A.
R.L. Nusbaum (Charleston, SC, U.S.A.) 245
Vapor deposition of trace elements from degassed basaltic lava, Piton de la Fournaise volcano, Reunion Island
J.P. Toutain (Napoli, Italy), P. Aloupogiannis, H. Delorme, A. Person and P. Blanc (Paris, France), and G. Robaye (Liege, Belgium) 257
Rare-earth element and heavy-metal behaviour associated with the epithermal gold deposit on Lihir Island, Papua New Guinea
B.G. Lottermoser (Newcastle, N.S.W., Australia) 269
The geology and geochemistry of Isla Marchena, Galapagos Archipelago: an ocean island adjacent to a mid-ocean ridge
E.P. Vicenzi and A.R. McBirney (Eugene, OR, U.S.A.), W.M. White (Ithaca, NY, U.S.A.) and M. Hamilton (Amherst, MA, U.S.A.) 291
Statistical analysis of seismic and eruptive activities at Mt. Etna during 1978–1987
P. Gasperini (Bologna, Italy), S. Gresta (Catania, Italy) and F. Mulargia (Bologna, Italy) 317
Renewal of explosive activity at Vesuvius: models for the expected tephra fallout
G. Macedonio, M.T. Pareschi and R. Santacroce (Pisa, Italy) 327